IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A device manufacturing method comprising:

patterning a beam of radiation using a reflective mask on which a pattern is defined by a radiation absorber ~~to endow a projection beam of radiation with pattern in its cross-section~~;

projecting the patterned beam of radiation onto a target portion of a layer of radiation-sensitive material on a substrate using a projection system; and

controlling system aberrations in the projection system used in said projecting to compensate for mask-induced imaging artifacts, so that values of at least one imaging metric for different feature types appearing in said pattern are brought closer together.

2. (Original) A method according to claim 1, wherein the radiation absorber is thick relative to a wavelength of the patterned beam of radiation.

3. (Original) A method according to claim 2, wherein the imaging artifacts result, at least in part, as a result of the thickness of the radiation absorber.

4. (Currently Amended) A method according to claim 1, further comprising calculating for said pattern, optimum aberrations to be effected in said projection system, taking account one or more parameters to be used in said projecting, said parameters being selected from the group comprising mask angle of incidence (MAI), absorber thickness, absorber material, feature type, numeral aperture, and illumination settings.

5. (Original) A method according to claim 1, wherein said system aberrations comprise one or more of Zernike polynomials Z2 (tilt in X), Z3 (tilt in Y), and Z7 (coma X), where these polynomials take the form:

Z2: $r \cdot \cos(\theta)$

Z3: $r \cdot \sin(\theta)$

Z7: $\left(3 \cdot r^3 - 2 \cdot r\right) \cdot \cos(\theta)$

6. (Cancelled)

7. (Currently Amended) A method according to ~~claim 6~~ claim 1, wherein said at least one imaging metric is selected from the group comprising: best focus shift, isofocal tilt, critical dimension, critical dimension uniformity, overlay, telecentricity, pattern asymmetry, pitch linearity and iso-dense bias.

8. (Currently Amended) A method according to ~~claim 6~~ claim 1, wherein said different features have different densities, different orientations and/or different critical dimensions.

9. (Currently Amended) A method according to ~~claim 6~~ claim 1, wherein said aberrations are introduced so as to bring process windows for said different features closer together.

10. (Original) A method according to claim 1, wherein said system aberrations comprise one or more of Zernike polynomials Z4 (defocus), Z5 (astigmatism HV), Z6 (astigmatism 45°/135°), Z8 (coma Y), Z9 (spherical aberration), Z12 (astigmatism HV – higher order) and Z13 (astigmatism 45°/135° - higher order), where these polynomials take the form:

Z4: $2 \cdot r^2 - 1$

Z5: $r^2 \cdot \cos(2 \cdot \theta)$

Z6: $r^2 \cdot \sin(2 \cdot \theta)$

Z8: $(3 \cdot r^3 - 2 \cdot r) \cdot \sin(\theta)$

Z9: $6 \cdot r^4 - 6 \cdot r^2 + 1$

Z12: $(4 \cdot r^4 - 3 \cdot r^2) \cdot \cos(2 \cdot \theta)$

Z13: $(4 \cdot r^4 - 3 \cdot r^2) \cdot \sin(2 \cdot \theta)$

11. (Currently Amended) A method according to claim 4, wherein said calculating further comprises:

determining sensitivities of different features in said pattern to different aberrations; and

determining optimum combination of aberrations using the determined sensitivities.

12. (Currently Amended) A method according to claim 11, wherein said sensitivities are determined by simulating images of said different features with at least one of different amounts and combinations of aberrations.

13. (Currently Amended) A computer readable medium having executable instructions stored therein that, when executed on a computer system, instruct the computer to perform a method comprising:

determining ~~the~~ sensitivities of different features in a mask pattern on a reflective mask to different aberrations;

determining the optimum combination of aberrations using the determined sensitivities so that values of at least one imaging metric for different features in the mask pattern are brought closer together.

14. (Currently Amended) A computer readable medium according to claim 13, wherein said instructions comprise instructions for simulating images of said different features with at least one of different amounts and combinations of aberrations to effect said determining the sensitivities

15. (Cancelled)

16. (Currently Amended) A computer readable medium according to ~~claim 15~~ claim 13, wherein said at least one imaging metric is selected from the group comprising: best focus shift, isofocal tilt, critical dimension, critical dimension uniformity, overlay, telecentricity, pattern asymmetry, pitch linearity and iso-dense bias.

17. (Currently Amended) A computer readable medium according to ~~claim 15~~ claim 13, wherein said different features are at least two features selected from the group consisting of dense and isolated lines, horizontal and vertical lines, and/or lines of different widths.

18. (Currently Amended) A computer readable medium according to claim 17, wherein said ~~code means is~~ instructions are adapted to determine optimum aberrations to be effected so as to bring process windows for said different features closer together.

19. (Currently Amended) A computer readable medium according to claim 13, wherein said system aberrations are Zernike polynomials Z2 (tilt in X), Z3 (tilt in Y), and Z7 (coma X), where these polynomials take the form:

Z2: $r \cdot \cos(\theta)$

Z3: $r \cdot \sin(\theta)$

Z7: $\left(3 \cdot r^3 - 2 \cdot r\right) \cdot \cos(\theta)$.

20. (Currently Amended) A computer readable medium comprising:

~~programmed~~ a computer code having ~~with~~ machine executable instructions, said machine executable instructions adapted to control ~~for controlling~~ a lithographic projection apparatus to effect system aberrations in the projection system of the lithographic projection apparatus so as to optimize imaging of a reflective mask embodying a mask pattern in a thick absorber,

wherein said optimizing includes bringing values of at least one imaging metric for different feature types in the mask pattern closer together.

21. (Currently Amended) A computer readable medium according to claim 21, wherein said system aberrations are Zernike polynomials Z2 (tilt in X), Z3 (tilt in Y), and Z7 (coma X), where these polynomials take the form:

Z2: $r \cdot \cos(\theta)$

Z3: $r \cdot \sin(\theta)$

Z7: $\left(3 \cdot r^3 - 2 \cdot r\right) \cdot \cos(\theta)$.